household members of these persons, health-care workers, and other persons who want to decrease their risk for influenza remain unvaccinated by the end of November (*1*). Current projections indicate that 93 million doses of influenza vaccine will be available during the 2002–03 influenza season, and several million doses remain available for purchase. To maximize coverage among target groups and overall use, physicians should offer influenza vaccine throughout the influenza season. Influenza activity peaked in January or later in 21 of the preceding 25 influenza seasons (*1*). During influenza season and all year, pneumococcal vaccination also should be offered to persons aged ≥65 years and others at high risk who have not been vaccinated or whose vaccination status is unknown. Physicians can improve coverage by using strategies such as improved record keeping, standing orders, reminder/recall systems, and offering vaccinations to hospitalized patients before discharge (*8,9*). Additional information about influenza and pneumococcal vaccination is available at http://www.cdc.gov/nip.

Acknowledgment

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Notice to Readers

Use of Anthrax Vaccine in Response to Terrorism: Supplemental Recommendations of the Advisory Committee on Immunization Practices

In December 2000, the Advisory Committee on Immunization Practices (ACIP) released its recommendations for using anthrax vaccine in the United States (*1*). Because of recent terrorist attacks involving the intentional exposure of U.S. civilians to *Bacillus anthracis* spores and concerns that the current anthrax vaccine supply is limited, ACIP developed supplemental recommendations on using anthrax vaccine in response to terrorism. These recommendations supplement the previous ACIP statement in three areas: use of anthrax vaccine for pre-exposure vaccination in the U.S. civilian population, the prevention of anthrax by postexposure prophylaxis (PEP), and recommendations for additional research related to using antimicrobial agents and anthrax vaccine for preventing anthrax.

Use of Anthrax Vaccine for Pre-Exposure Vaccination

In December 2001, the U.S. Department of Health and Human Services obtained a limited supply of anthrax vaccine (BioThrax [formerly Anthrax Vaccine Adsorbed (AVA)], BioPort, Lansing, Michigan), allowing ACIP to reconsider using anthrax vaccine in the U.S. civilian population. ACIP reaffirms that pre-exposure use of anthrax vaccine should be based on a quantifiable risk for exposure (*1*). ACIP recommends that groups at risk for repeated exposures to *B. anthracis* spores should be given priority for pre-exposure vaccination. Groups at risk for repeated exposure include laboratory personnel handling environmental specimens (especially powders) and performing confirmatory testing for *B. anthracis* in the U.S. Laboratory Response Network (LRN) for Bioterrorism Level B laboratories or above, workers who will be making repeated entries into known *B. anthracis*-spore–contaminated areas after a terrorist attack (*2*), and workers in other settings in which repeated exposure to aerosolized *B. anthracis* spores might occur. Laboratory workers using standard Biosafety Level 2 practices in the routine processing of clinical samples or environmental swabs (Level A laboratories [*3*]) are not considered by ACIP to be at increased risk for exposure to *B. anthracis* spores.

For persons not at risk for repeated exposures to aerosolized *B. anthracis* spores through their occupation, pre-exposure vaccination with anthrax vaccine is not recommended. For the general population, prevention of morbidity and mortality

associated with anthrax will depend on public vigilance, early detection and diagnosis, appropriate treatment, and PEP.

Prevention of Anthrax by PEP

Because of a potential preventive benefit of combined antimicrobial PEP and vaccine and the availability of a limited supply of anthrax vaccine for civilian use, ACIP endorses CDC making anthrax vaccine available in a 3-dose regimen (0, 2, 4 weeks) in combination with antimicrobial PEP under an Investigational New Drug (IND) application with the Food and Drug Administration for unvaccinated persons at risk for inhalational anthrax. However, anthrax vaccine is not licensed for postexposure use in preventing anthrax.

Use of anthrax vaccine for PEP could have additional benefits, including reducing the need for long-term antimicrobial therapy with its associated problems of nonadherence and possible adverse events. After the anthrax-related terrorist attacks in 2001, approximately 10,000 persons were recommended to receive a 60-day regimen of antimicrobial prophylaxis for suspected or confirmed exposure to *B. anthracis* spores, but adherence to the recommended 60-day antibiotic regimens was as low as 42% (*4*). In addition, because studies of the 2001 terrorist attacks suggest that some persons might be exposed to *B. anthracis* spores in excess of those studied in animal models, the effectiveness of antimicrobial prophylaxis in such persons is unclear (*4*). However, no cases of anthrax have been detected among persons recommended to take antimicrobial prophylaxis after the terrorist attacks of 2001.

The provision of anthrax vaccine for PEP under an IND application should provide an opportunity to reduce the risk to the greatest extent possible with current medical knowledge and might provide data to support developing additional recommendations for preventing anthrax. To better document the immunogenicity of anthrax vaccine in the postexposure setting, ACIP encouraged CDC to obtain serologic testing on a subset of vaccinees.

ACIP recommended previously that if antimicrobial therapy is used alone for postexposure prevention of anthrax, at least a 30-day course of treatment should be provided. Previous recommendations noted that longer courses (42–60 days) might be indicated. On the basis of limited data from both unintentional human exposures and animal studies (*5*–*7*), ACIP now recommends that the duration of postexposure antimicrobial prophylaxis should be 60 days if used alone for PEP of unvaccinated exposed persons.

Data are insufficient to clarify the duration of antimicrobial use in combination with vaccine for PEP against anthrax. Antibody titers among vaccinated persons peak at 14 days after the third dose (*8*). If antimicrobial prophylaxis is administered in combination with postexposure vaccination, it might be prudent to continue antibiotics until 7–14 days after the third vaccine dose.

Few data exist about the effectiveness of postexposure antimicrobial prophylaxis among exposed persons who have been partially or fully vaccinated. In the only human clinical trial of anthrax vaccine, cases occurred among participants who had received <4 doses (*9*). Recognizing these limited data, but considering a potential undefined benefit, ACIP recommends that persons who have been partially or fully vaccinated receive at least a 30-day course of antimicrobial PEP and continue with the licensed vaccination regimen. Antimicrobial PEP is not needed for vaccinated persons working in Biosafety Level 3 laboratories under recommended conditions (*10*) nor for vaccinated persons (six vaccinations according to the current label) wearing appropriate personal protective equipment (PPE) while working in contaminated environments in which inhalational exposure to *B. anthracis* spores is a risk, unless their respiratory protection is disrupted.

Additional Considerations

For most occupational settings, recommendations about anthrax vaccine and antimicrobial PEP might be implemented in combination with use of appropriate PPE (*2*). In addition to receiving PEP for preventing anthrax, potentially exposed persons should be observed for signs of febrile illness. CDC has published guidelines on clinical evaluation of persons with possible anthrax, including antimicrobial treatment (*1*,*2*). Because the current vaccine supply is limited, ACIP recommends expanded and intensive efforts to improve anthrax vaccine production.

Recommendations for Additional Research

Because of the absence of data to guide public health recommendations in these critical areas, ACIP recommends studies on the safety and immunogenicity of anthrax vaccine for use in children, additional studies on the safety of anthrax vaccine during human pregnancy, and reproductive toxicology studies on anthrax vaccine in laboratory animals. To strengthen public health recommendations for PEP, ACIP recommends expanded animal studies to evaluate further the effectiveness of antimicrobial prophylaxis with and without anthrax vaccine, define the optimal duration of antimicrobial PEP for the prevention of inhalational anthrax, and evaluate alternative antimicrobial PEP regimens. Additional research also should be directed toward developing an improved vaccine for preventing anthrax and new therapeutic strategies, including use of antitoxin (e.g., hyperimmune globulin) for treating anthrax.

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West Nile Virus Activity — United States, November 7–13, 2002

This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET and by states and other jurisdictions as of 8 a.m. Mountain Standard Time, November 13, 2002.

During November 7–13, a total of 80 laboratory-positive human cases of WNV-associated illness were reported from Michigan (n=21), Illinois (n=19), the District of Columbia (n=seven), Alabama (n=five), Missouri (n=four), New York (n=four), Kansas (n=three), Maryland (n=three), Virginia (n=three), Wisconsin (n=three), Colorado (n=two), Louisiana (n=two), Tennessee (n=two), Montana (n=one), and New Jersey (n=one). During this period, Montana reported its first-ever human case of WNV infection. Also, during the same period, WNV infections were reported in 210 dead crows and 294 other dead birds. A total of 169 veterinary cases and 79 WNV-positive mosquito pools were reported.

During 2002, a total of 3,587 human cases with laboratory evidence of recent WNV infection have been reported from Illinois (n=738), Michigan (n=504), Ohio (n=413), Louisiana (n=323), Indiana (n=247), Mississippi (n=182), Missouri (n=169), Texas (n=148), Nebraska (n=115), New York (n=78), Kentucky (n=67), Pennsylvania (n=59), Tennessee (n=54), Iowa (n=48), Alabama (n=46), Minnesota (n=42), Wisconsin (n=42), South Dakota (n=37), the District of Columbia (n=34), Georgia (n=30), Maryland (n=28), Virginia (n=27), Massachusetts (n=22), Arkansas (n=21), Florida (n=18), Connecticut (n=17), North Dakota (n=17), Oklahoma (n=16), Colorado (n=12), New Jersey (n=12), Kansas (n=nine), West Virginia (n=three), North Carolina (n=two), California (n=one), Delaware (n=one), Montana (n=one), Rhode Island (n=one), South Carolina (n=one), Vermont (n=one), and Wyoming (n=one) (Figure). Among the 3,226 patients for whom data were available, the median age was 56 years (range: 1.5 months–99 years); 1,719 (54%) were male, and the dates of illness onset ranged from June 10 to October 21. A total of 196 human deaths have been reported. The median age of decedents was 78 years (range: 24–99 years); 119 (61%) deaths were among men. In addition, 7,522 dead crows and 5,730 other dead birds with WNV infection were reported from 42 states and the District of Columbia; 8,312 WNV infections in mammals (8,299 equines, three canines, and 10 other species) have been reported from 37 states (Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Wisconsin, and Wyoming). During 2002, WNV seroconversions have been reported in 366 sentinel chicken flocks from Florida, Iowa, Nebraska, North Carolina, Pennsylvania, Texas, and New York City; 4,906 WNV-positive mosquito pools have been reported from 27 states (Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Vermont, and Virginia), New York City, and the District of Columbia.

Additional information about WNV activity is available at http://www.cdc.gov/ncidod/dvbid/westnile/index.htm and http://www.cindi.usgs.gov/hazard/event/west_nile/west_nile.html.